Record of Decision

November 9, 1966*

DRAFT

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Recommended FY68-72 Strategic Offensive and Defensive Forces (U)

I have reviewed our Strategic Offensive and Defensive Forces for FY68-72 in preparation for the FY68 budget. The tables on pp. 3-4 summarize our force goals. Detailed force and financial summaries are displayed in the tables attached to this Memorandum. I recommend that we:

1. Complete development of and deploy a MIRVed POSEIDON, for an incremental $705 million in FY68, and $3.3 billion in FY68-72. Plan on a total of 31 POSEIDON submarines.

2. Maintain 1000 MINUTEMAN missiles, consisting by FY72 of 600 MINUTEMAN IIs and 400 IIIs, the latter with improved third stages and Multiple Independent Re-entry Vehicles (MIRVs), for $1.2 billion in FY68, $3.6 billion in FY68-72.

3. Procure area penetration aids for all MINUTEMAN and terminal penetration aids for MINUTEMAN III, at an FY68 investment cost of $55 million and a total of $95 million in FY68-72 investment. Complete development of POLARIS penetration aids and preserve a 1970 Operational Availability Date (OAD), but disapprove a JCS recommendation for procurement in FY68 of penetration aids for POLARIS. Procurement of these would cost $300 million in investment in FY68-72.

4. Adopt a 1.5 crew-to-aircraft ratio and a 43% alert rate for the strategic bomber force instead of continuation of JCS recommended 1.8 crew ratio and 53% alert rate; approve in principle a bomber dispersal plan and an increase in the number of B-52s per base to 30 where savings will result. The estimated savings are $100 million in FY68, and about $0.5-$1.0 billion in FY68-72.

*Supersedes memo dated September 22, 1966

5. Disapprove the JCS recommendation for full scale advanced follow-on bomber development in FY68; disapprove the JCS recommendation to obtain firm contractor proposals for system development at an FY68 cost of $40 million; approve, after completion of concept formulation, continuing component development at an FY68 cost of $11 million. Development, deployment and 5 year operation of 200 of these aircraft would cost about $8.5 billion.

6. Extend the approved Civil Defense program, at an FY68 cost of $186 million, including $10 million for an experimental shelter development program for low-cost dual purpose shelter in new non-Federal public and private construction.

7. Disapprove a JCS recommendation to develop and deploy 12 UE F-12s in FY72 at a FY68 cost of $80 million and a FY68-72 cost of $420 million. Discontinue further F-12 development and defer until next year decision to modernize our air defense by introducing interceptor F-111s and an Airborne Warning and Control System (AWACS).

8. Continue to develop NIKE-X at an FY68 cost of $420 million. Disapprove a JCS recommendation to deploy a light Nike-X defense against the USSR offensive force for a FY72 IOC at an additional FY68 cost of $806 million, a total deployment cost of $10.0 billion and an annual operating cost of $250 to $350 million.

9. Approve a JCS recommendation for a new military survival measures program to develop increased fallout protection capabilities for Army, Navy, Air Force and Marine Corps personnel. Disapprove the full scale program recommended by the JCS at an FY68-72 cost of $190 million. Approve the more limited, high priority elements of the program at an FY68-72 cost of $47 million.

The financial implication of these recommendations are as follows:

	(Billions of Dollars)						
	FY67	FY68	FY69	FY70	FY71	FY72	FY68-72
Prev. App'd	7.2	7.6	7.2	6.3	4.9	5.0	31.0
JCS Prop.	7.2	8.4	9.3	10.3	9.8	10.0	47.8
SecDef Rec.	7.1	8.1	8.1	7.0	5.5	4.8	33.5

Strategic Retaliatory Forces Summary

	FISCAL YEARS														
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Bombers in Combat Units (UE)															
B-52	900	810	585	450	225	–	–	–	–	–	–	–	–	–	–
B-58	555	615	630	630	630	600	555	510	435	330	255	255	255	255	255
FB-111A	40	80	80	80	80	80	78	76	74	72	–	–	–	–	–
TOTAL UE BOMBERS	–	–	–	–	–	–	–	–	15	105	210	210	210	210	210
	1495	1505	1295	1160	935	680	633	586	524	507	465	465	465	465	465
Air Launched Missiles (UE)															
Hound Dog AAM	216	460	580	580	560	540	480	340	340	340	340	340	340	340	340
SRAM	–	–	–	–	–	–	–	–	–	150	450	525	525	525	525
TOTAL UE AIR LAUNCHED MISSILES	216	460	580	580	560	540	480	340	340	490	790	865	865	865	865
Ballistic Missiles (UE)															
Atlas and Titan	28	78	193	221	54	54	54	54	54	54	45	45	36	27	27
Minuteman I	–	–	160	600	800	800	700	550	400	250	100	–	–	–	–
Minuteman II	–	–	–	–	–	80	300	450	600	600	600	600	600	600	600
Minuteman III a/	–	–	–	–	–	–	–	–	–	150	300	400	400	400	400
POLARIS b/	80	96	128	192	400	432	512	544	544	464	352	256	176	176	128
POSEIDON b/	–	–	–	–	–	–	–	–	–	–	112	208	320	352	384
TOTAL UE BALLISTIC MISSILES	108	174	481	1073	1254	1366	1566	1598	1598	1518	1509	1509	1532	1555	1539
Other															
Quail	224	392	392	392	392	390	390	390	390	390	390	390	390	390	390
Tankers	1000	1020	840	820	740	620	615	615	615	615	615	615	615	615	615
RB-47/RC-135	90	45	30	30	27	14	10	10	10	10	10	10	10	10	10
SR-71 c/	–	–	–	–	6	18	30	29	29	28	27	27	26	25	25
PACCS (Post Attk Com & Cont)	–	18	53	54	24	27	32	32	32	32	32	32	32	32	32
Regulus	17	17	17	7	–	–	–	–	–	–	–	–	–	–	–
TACAMO c/	–	–	–	–	–	–	4	4	12	12	12	12	12	12	12
Non-UE Aircraft	939	974	891	840	570	460	436	422	422	391	354	374	374	374	374
Alert Force Weapons d/															
Number															
(MIRV)															
Megatons															
Ballistic Missile Submarines (SSBN)															
In Commission	5	6	8	12	25	27	32	34	34	29	29	29	31	33	32
In Conversion/Overhaul	–	–	1	3	4	10	9	7	7	12	12	12	10	8	9
TOTAL ACTIVE SHIPS (SSBNs)	5	6	9	15	29	37	41	41	41	41	41	41	41	41	41

Record of Decision

November 9, 1966

Strategic Defensive Forces Summary

JCS proposed, where different, in parentheses.

	FISCAL YEARS														
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Aircraft in Combat Units (UE)															
Interceptors															
USAF															
Century Series	1047	881	849	829	775	645	556	458 (504)	336 (486)	330 (474)	324 (456	318 (402)	312 (366)	306 (294)	300 (258)
F-12	-	-	-	-	-	-	-	-	-	-	-	(12)	(24)	(48)	(72)
TOTAL	1047	881	849	829	775	645	556	458 (504)	336 (486)	330 (474)	324 (456)	318 (414)	312 (390)	306 (342)	300 (330)
ANG	747	644	599	558	388	413	403	403	403	403	403	403 (385)	403 (367)	403 (367)	403 (349)
USN	25	27	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL UE INTERCEPTORS	1829	1552	1448	1387	1163	1058	959	861 (907)	739 (889)	733 (877)	727 (859)	721 (799)	715 (757)	709 (709)	703 (679)
Surveillance and Warning															
USAF	60	60	67	67	67	67	67	67	67	67	67	67 (64)	67 (42)	67 (42)	67 (42)
USN	50	44	45	43	20	-	-	-	-	-	-	-	-	-	-
TOTAL UE SURV. & WARNING	110	104	112	110	87	67	67	67	67	67	67	67 (64)	67 (42)	67 (42)	67 (42)
TOTAL UE AIRCRAFT	1939	1656	1560	1497	1250	1125	1026	928 (974)	806 (956)	800 (944)	794 (926)	788 (863)	782 (799)	776 (751)	770 (721)
Non-UE Aircraft	645	640	635	630	625	620	585	582	533	536	528	525	522	519	516
Surface to Air Missiles (SAM) a/															
BOMARC	238	307	383	200	180	172	164	156	148	140	132	124	116	108	100
NIKE (HERCULES and AJAX)	1223	1392	1480	1240	1299	1053	1071	1071	1071	1071	1071	1071	1071 (1021)	1071 (619)	1071 (218)
USA	1592	1512	984	504	762	792	792	792	792	792	792	792	792	792	792
ARMY	-	-	288	288	288	287	288	288	288	288	288	288	288	288	288
NAMK (USA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SAMS	-	-	-	-	-	-	-	-	-	-	-	-	(288)	(1440)	(2592)
TOTAL SAMs	3053	3211	3135	2232	2529	2274	2315	2307	2299	2291	2283	2274	2267 (2505)	2259 (3247)	2251 (3090)
Control & Surveil. Systems															
Control & Command Centers	38	57	54	48	47	51	52	42	57	57 (58)	57 (58)	57 (58)	57 (58)	57 (58)	57 (58)
Radars															
Fixed Sites	367	355	338	313	299	294	287	287	287	287	287	287	287	287	287
Active Ships	26	27	22	22	19	-	-	-	-	-	-	-	-	-	-
TOTAL CONTROL & SURVEIL. SITES	431	439	414	383	365	345	339	339	344	344 (345)	344 (345)	344 (345)	344 (345)	344 (345)	344 (345)
Missile & Space Defense															
Anti-Satellite (Missiles)															
Surveillance & Warning (Sites)	2	2	2	12	24	24	28	27	28	28	28	28	28	28	28
Nike X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPRINT Missiles												(192)	(480)	(876)	(1088)
TOTAL MISSILE & SPACE DEF SYSTEMS	2	2	2	20	32	32	30	31	32	32	32	32 (660)	32 (1392)	32 (2088)	32 (2300)
TOTAL ACTIVE INVENTORIES															
TOTAL ACTIVE AIRCRAFT	2584	2296	2194	2127	1874	1745	1611	1510	1339	1336	1322	1311	1301	1291	1281
TOTAL ACTIVE SHIPS	26	27	22	22	19	-	-	-	-	-	-	-	-	-	-
TOTAL ACTIVE SAMs	3231	3391	3329	3421	3734	3747	3487	3401	3307	3221	3135	3049	2963	2877	2791

a/ Forces shown are SAM missiles deployed on site.

I. THE GENERAL NUCLEAR WAR PROBLEM

Our strategic nuclear forces should deter attack on the U.S. and its Allies and, if deterrence fails, limit damage to our society and those of our Allies. To accomplish these objectives, we design our forces around two related concepts; Assured Destruction - that is, the clear and unmistakable ability to destroy the societies of the USSR and/or the Chinese People's Republic (CPR) even after a surprise attack; and Damage Limiting, which entails the ability to reduce by both offensive and defensive means the damage an enemy can inflict on the U.S. and its Allies.

Deterrence must work over a range of situations. It must prevent not only a massive surprise attack, but also Soviet escalation to general nuclear war from local war. The Assured Destruction capability is designed to deter a potential aggressor, even in crisis situations when the alternatives to initiating nuclear war might otherwise lead him to go to war.

The Soviets seem to view our forces, as we do theirs, as a potential first strike threat. The recent deployment of the new, relatively small

reflect their concern to protect their strategic offensive forces against a U.S. first strike. Our force structure planning should take account of the interactions implied by their interest in having a protected retaliatory force.

Three broadly different posture alternatives are available. First, we could seek only an Assured Destruction capability (although we would in any case achieve a substantial Damage-Limiting capability in the process of building an Assured Destruction capability). Second, we might add a light Damage Limiting increment that would give some protection against probable types of Soviet attacks, and more complete protection against small attacks that the CPR may be able to mount in the 1970s. Third, we might try to add a major Damage Limiting capability to keep U.S. fatalities very low against the heaviest possible Soviet attack, and regardless of Soviet force structure responses.

Plainly, we must and will maintain whatever forces are needed to meet the Assured Destruction objective, while keeping flexibility to meet unpredictable changes in the threat. Under the second option, we would choose Damage Limiting programs that insure against the failure of deterrence under many, but not all, circumstances. The third alternative is certain to be very expensive. Moreover, because its rigid objective is probably infeasible, I reject this option.

Relative U.S.-USSR Strategic Capabilities. The following table compares estimated Soviet strategic offensive forces with those of forces the U.S. programmed for the same years.

U.S. vs SOVIET STRATEGIC NUCLEAR FORCES a/

	1966		1968		1971	
	U.S.	USSR	U.S.	USSR	U.S.	USSR
ICBMs b/						
Soft Launchers	0		0		0	
Hard Launchers	934		1054		1045	
Mobile	0		0		0	
TOTAL	934		1054		1045	
MR/IRBMs						
Soft Launchers	0		0		0	
Hard Launchers	0		0		0	
Mobile	0		0		0	
TOTAL	0		0		0	
SLBM Inventory Launchers	512		656		656	
Bombers and Tankers c/						
Heavy	600		510		255	
Medium	80		76		210	
Tankers	620		620		620	
TOTAL	1300		1206		1085	

a/ From National Intelligence Estimates and National Intelligence Projections for Planning (NIPP).

b/ Excludes test range launchers, having some operational capability, of which the Soviets are estimated to have in mid-1966, in mid-1968, and in mid-1971.

c/ We estimate that the Soviets could send somewhat over heavy bombers and no medium bombers over the continental United States on two-way missions. U.S. medium bombers are FB-111s in 1971, with range and payload markedly greater than those of the Soviet medium bombers.

In addition to the offensive forces shown, two relatively large-scale Soviet defensive programs

The CPR Nuclear Threat. The earliest operational Chinese ICBM is not likely to appear till the mid-1970s. Given the utility to the CPR of being able to threaten her neighbors and U.S. Far Eastern bases, it seems likely that the Chinese would try first to develop and deploy an MRBM. Indeed, some test firings of medium range missiles have been in progress over the past several years.

[redacted] As a force to retaliate for a U.S. strike against the CPR, however, this system is vulnerable, since

The CPR also has almost 300 bombers capable of delivering nuclear weapons against Asian targets. But only 15 of these have ranges beyond 600 miles, and the Chinese are unlikely to undertake the costly development of a long range bomber to attack CONUS.

II. ADEQUACY OF THE PROGRAMMED OFFENSIVE FORCES FOR ASSURED DESTRUCTION

Against the Expected Threat. Our Assured Destruction capabilities based on programs approved last year or on the programs I am now recommending can survive a well-coordinated Soviet surprise attack, even if the Soviets used all their available strategic offensive forces against our own.

U.S. WEAPONS SURVIVING A SURPRISE SOVIET FIRST STRIKE, 1972

	Previously Programmed Forces		Recommended Forces	
	Total Forces	Expected Surviv. Reliable Forces	Total Forces	Expected Surviv. Reliable Forces
Missiles				
Number of Weapons				
Megatons (MT)				
1 MT Equivalent Weapons				
Bomber Weapons				
Number of Weapons				
Megatons				
1 MT Equivalent Weapons				

As shown, even after a surprise Soviet first strike, some equivalent 1 MT U.S. weapons could be reliably launched against the USSR by either the programmed or recommended forces.

SOVIET POPULATION AND INDUSTRY DESTROYED (1972)
(Assumed 1972 Total Population of 247 Million; Urban Population of 130 Million)

One Megaton Delivered Warheads	Population Fatalities				Percent Ind. Cap. Destroyed
	Urban		Total		
	Percent	Millions	Percent	Millions	
100					
200					
400					
800					
1,200					
1,600					

I believe that a clear and unmistakable ability to inflict 20-30% Soviet fatalities will deter a deliberate Soviet attack on the U.S. or its Allies. Even if the Leningrad associated sites are an effective ballistic missile defense, or if the Moscow defense were deployed at other cities as well, the programmed U.S. missile force, with the penetration aid program of this and prior years, could inflict more than 35% fatalities after a surprise attack in 1972.

Although the Chinese may attain the capability to threaten U.S. bases and Asian neighbors, the CPR nuclear forces, between now and 1972, will not pose a threat either to U.S. retaliatory capability or to the viability of our society. A U.S. nuclear attack upon the CPR during this period would therefore be in retaliation for some lesser act of aggression, and extensive destruction of Chinese society would not be an appropriate response. Rather, selective attacks on governmental, military, or industrial targets would be called for.

Nevertheless, since 1 MT warheads denotated over CPR cities would destroy half of China's urban population and more than half of her industry, the strategic missile force recommended for FY68-72 provides an Assured Destrouction capability against the most likely Soviet and CPR threats simultaneously. More important, these forces give us an Assured Destruction capability against the Soviet Unition during the execution of limited nuclear attacks on China.

Against Higher-Than-Expected Threats. We cannot now be sure that the USSR would not deploy a very heavy ABM in the FY68-72 time period. The effect of adding a very extensive Soviet ABM (which would cost them the equivalent of $25 billion over a five year period) is summarized on the following page:

	FY69	FY70	FY71	FY72
Soviet ABM				
Reliable Area Interceptors				
Reliable Terminal Interceptors				
Percent Soviet Fatalities Inflicted by Recommended U.S. Missile Forces				

This illustration shows that the procurement of POSEIDON to replace POLARIS A-3 on 31 existing SSBNs and of MINUTEMAN maintains our Assured Destruction capability at an adequate level. I am recommending that we include both these measures in the missile force.

Against a strong Soviet missile force with accurate MIRV but in the absence of an extensive ABM the Assured Destruction capability of the recommended missile force would not fall below In fact, our sea-based forces alone could inflict fatalities against such a Soviet threat.

The worst case against which we might have to hedge - unlikely, but possible in the early 1970s - is one in which the Soviets deployed The Soviet ABM could destroy our offensive re-entry vehicles directly, and also force us to equip missiles with penetration aids at the expense of lethal payload. The Soviets might also defend preferentially, protecting some targets with more interceptors than expected, thus complicating our targeting problem.

	FY69	FY70	FY71	FY72	FY73

Each is assumed to carry MIRV with a yield of per re-entry vehicle, with a CEP of in FY 1971 and thereafter. Against the combined threat with both the and the recommended force therefore would include 31 SSBNs converted to as well as the other elements of the previously approved missile force. If the Soviets do not employ sophisticated tactics such as preferential defense, the Soviet fatalities that could be inflicted by the recommended missile force against the combined threat are as follows:

	FY69	FY70	FY71	FY72	FY73
Soviet Fatalities					

More extreme threats are possible, but they are so unlikely, given the state of Soviet technology, and the high cost to the USSR of mounting such forces, that they do not warrant taking now any actions in addition to those included in the recommended U.S. force. I will, however, discuss below some available hedging actions for our missile force. In any case, even against the most extreme threat, the combined Assured Destruction capability of the Recommended U.S. Missile Force and the Programmed Bomber Force is clearly adequate, and would amount to over 35% fatalities.

Our offensive forces make it dangerous and expensive for the Soviets to move in the direction of extreme threats to our Assured Destruction capability. The incremental 5 year cost to the USSR of the depicted and ABM threats would be about $30 billion, approximately a forty percent increase in the present Soviet expenditure rate on strategic forces. Yet, evaluating the Soviet Assured Destruction capability with extreme conservatism, as a Soviet planner might do, this Soviet missile force with only these SLBMs, and the older missiles would inflict less than 10% fatalities on the U.S. after a pre-emptive strike by programmed U.S. forces. If this was an unsatisfactory Assured Destruction capability for the Soviets and they reoriented their planning at the same budget level to maintain Assured Destruction, they would have to reduce their spending on ABM or MIRV. The USSR would have to reduce vulnerability to the very accurate programmed U.S. offensive forces, by expensive measures such as further dispersal of missile payload, , by hard point defenses (HPD), or by adoption of mobile missile basing schemes - thereby reducing the total Soviet missile payload that would otherwise be available at a given budget level. The reduction in Soviet missile payload, in turn would make the U.S. Assured Destruction task less expensive or, alternatively, the development of higher-than-expected threats even less likely.

Of course, the Soviets could increase their strategic budget. But we can, in planning our forces, foreclose any seemingly "easy" and cheap paths to their achievement of a satisfactory Assured Destruction capability and a satisfactory Damage Limiting capability at the same time.

III. MISSILE HEDGES AGAINST A SOVIET MIRV-ABM THREAT

If it became desirable to supplement our planned strategic offensive forces, we could either (1) add hard, fixed-based missiles - such as an undefended advanced ICBM - with relatively low cost per unit of alert payload in inventory, but high cost per unit of payload surviving an attack; or (2) add sea or land-based mobile systems or fixed-site missiles with hard point defense, all of which have relatively high costs per unit of alert payload in inventory, but are relatively insensitive to the Soviet offensive threat.

This distinction is illustrated in the following table with MINUTEMAN representing the first class of offensive forces and POLARIS representing the second class. In this calculation the low Soviet attack inflicts 10% damage on U.S. land-based forces and the high attack inflicts 90% damage.

TEN-YEAR COSTS PER THOUSAND POUNDS OF PAYLOAD
(Millions of Dollars)

	In The Inventory	On Alert & Reliable	Reliable and Surviving: Low Soviet Attack	Reliable and Surviving: High Soviet Attack
MINUTEMAN II				
POLARIS A-3				

Future candidate systems in these two classes are considered below:

1. POSEIDON: To hedge against an extreme threat, we could consider construction of new POSEIDON submarines in addition to the recommended conversion of POLARIS A-3 to POSEIDON submarines. If long lead time items were switched from the SSN to the SSBN programs in FY67, 10 new POSEIDON submarines could be constructed and delivered, 5 each in FY71 and FY72, at $1.46 billion in FY68 and $2.4 billion in FY68-72.

2. Advanced ICBM: We are studying new ICBMs of increased payload, including basing schemes to protect them against the MIRV threat. These studies are essential to determining the utility of an advanced ICBM as part of the force mix. Definitive rresults are not expected in time for the FY68 budget. A decision on an Advanced ICBM before completion of these studies would be premature. By end FY73, 50 Advanced ICBMs could be available in a mobile or defended configuration. Undefended, they would cost $1.8 billion to develop and $15 million per missile to deploy. Annual operating costs for 300 missiles would be about thousand per missile, including flight testing. Ten year costs of a mobile or defended ICBM might be approximately twice as high.

3. Interim MINUTEMAN Defense: Although hard point ballistic missile defenses would be intended for an advanced ICBM, they could be deployed as an interim measure in FY71 or FY72 to protect MINUTEMAN, if the extreme Soviet threat appeared. For $240 million in FY67-68 NIKE-X production funds, MINUTEMAN could be defended on the following schedule:

	FY71	FY72	FY73
MINUTEMAN Squadrons with Terminal Defense			
SPRINT Interceptors			
ZEUS Interceptors			

The FY68-72 costs of this defense would be approximately $5.3 billion, and the defenses could also be useful for an Advanced ICBM.

4. Ballistic Missile Ships (BMS): A ballistic missile ship was studied extensively in connection with various proposals for an Allied Nuclear Force. Built to look like a merchant vessel, such a ship would rely on deception, speed, or fleet defense for protection. The vulnerability of this system is, of course, the principal reservation. Long lead time funding of some $86 million would maintain the option of procuring ballistic missile ships on the same schedule as that of new POSEIDON submarines. If the option were exercised, FY68-72 costs would be $1.4 billion for 10 ships and $2.6 billion for 20. About $0.8 billion of the $2.6 billion is for POSEIDON missiles, which could be later used in POSEIDON submarines.

I believe that it is not necessary to commit ourselves now to exercizing our options on any of these hedges.

IV. THE MANNED BOMBER FORCE

Strategic bombers might be called on in the future to support conventional operations on a much wider scale than they are doing now in Southeast Asia. Moreover, the Assured Destruction capability of our strategic missile force will almost certainly deter the Soviets from a surprise attack except, perhaps, in an extreme crisis or an escalating war. In these cases we would have received sufficient warning to put the strategic bomber force on high alert. Our bombers should therefore be primarily designed for such situations, rather than for all-out immediate use in spasm nuclear exchanges.

Our bomber threat appears to affect enemy force planning, just as do our missiles. Bombers force the enemy to divert resources to defend against aircraft as well as against ICBMs. In this role, they have their chief advantage; and in this role, they are not needed in large numbers.

Reduction in manned aircraft operating expenses would be consistent with this view of the bombers role. A alert rate, down from will be sustainable with the recommended new crew ratio. At this rate, our alert bombers could deliver more than 1 MT equivalents against present Soviet defenses, and against the projected, improved FY71 defenses. Location in the interior of the U.S. is desirable, where suitable bases exist, to protect against a future sea-launched missile threat. In general, B-52s should have the ability to diperse in times of crisis and be distributed with per home base where economies will result. By May 1967, the Air Force will have completed a basing study to determine the feasibility of these basing concepts.

Such operating adjustments will provide a large enough surviving bomber fleet to meet the entire Assured Destruction payload requirement, will save $200-400 million annually, and will probably make it possible

to extend the B-52 G/H's life to FY77 without additional modification. This will allow an added margin of safety in the timing of some of our strategic missile development and procurement decisions.

V. STRATEGIC FORCES AND DAMAGE LIMITING

Damage Limiting forces, unlike those for Assured Destruction, cannot and need not work with near perfection under all conditions, but should insure against the most probable risks, including those posed by the growth of Chinese nuclear forces. The implications of Soviet reactions for our own choices of Damage Limiting forces must also be taken into account.

Evaluation of Damage Limiting Programs Against the Soviet Threat. So long as we have secure retaliatory forces, any kind of nuclear war with the Soviets is unlikely. Of the ways in which one might start, a surprise attack in normal times is especially unlikely; it would be much more likely to arise from a crisis or limited war, giving both sides enough strategic warning to increase their alert status. The Soviets might start a nuclear war for fear of a pre-emptive strike by the U.S., as part of a massive attack on Western Europe, or to prevent the loss of a limited war. In each case, the Soviets could be expected to try to preserve as much as possible of Soviet society and military power. Thus, they might devote a large part of their strategic offensive forces to reducing the U.S. offensive threat.

The Damage Limiting ability of various U.S. postures will be evaluated under the following kinds of wars:

1. A Soviet first strike against both military and civil targets, with the most reliable, controllable, and effective Soviet weapons going to military targets, and slower or harder-to-coordinate weapons (such as SLBMs, bombers, and non-alert ICBMs) going to urban targets. The Soviets might not allocate any ICBMs to our hardened missiles, however, and we will therefore show a range of results depending on whether the Soviets target U.S. hard missiles or put extra weight of attack on U.S. cities.

2. A Soviet counter-military first strike, with the most survivable, controllable, and reliable weapons held in reserve as a threat against U.S. cities to deter U.S. attacks on Soviet cities. We show: (a) the U.S. fatalities from the Soviet counter-military strike (collateral fatalities), (b) the residual Soviet damage potential against U.S. cities after a U.S. counter-military response.

3. A U.S. pre-emptive, counter-military strike in which Soviet ballistic missiles are assumed to ride out the U.S. ballistic missile attack, and Soviet bombers are launched with tactical warning. This case

is used as an example of a calculation the Soviets might make to test their Assured Destruction capability. The U.S. fatalities in an all-out counter-urban strike by the Soviets are shown in the table below.

The Soviet damage potential against the U.S. in three kinds of war is depicted, with the Soviet threat in 1976 assumed to consist of ICBMs, submarine launched missiles, and heavy bombers.

UNITED STATES FATALITIES

	Comb. Military-Urban Attack By USSR	Withheld Urban Attack: Collateral Fatalities	Withheld Urban Attack: Remaining Urb. Damage Potent.	U.S. Pre-emptive Strike
1971 U.S. Approved Program				
1976 U.S. Approved Program Extended				

Two factors tend to decrease U.S. fatalities between 1971 and 1976: the gradual decline in the Soviet bomber threat, and improved U.S. counter-military capabilities. Without programmed U.S. defenses, however, the USSR's damage potential could be over 100 million (50%) U.S. fatalities in a mixed Soviet attack.

We have also analyzed the effects if the U.S. initiated either of two balanced Damage Limiting programs, assuming at this point that we evoked no response from the USSR except for provision of penetration aids for projected Soviet missiles. (Soviet responses are considered below.) Posture A includes NIKE-X with a limited Sprint defense at cities, an improved bomber defense using F-111s, and expanded civil defense. Posture B includes a heavy Sprint defense of cities. Incremental expenditures for these postures, measured from the Approved Program as a base, are shown in the following table.

COSTS OF ALTERNATIVE DEFENSE POSTURES (In $ Billions)

	Approved Program		Damage Limiting Increment Over Approved Programs			
		Level-off	Posture A		Posture B	
	Dev+Inv	Annual	Dev+Inv	Annual	Dev+Inv	Annual
Civil Defense						
NIKE-X						
Air Defense						
TOTAL						

The table below compares the performance of the Approved Program with that of Postures A and B.

UNITED STATES FATALITIES IN 1976

	Withheld Urban Attack		U.S.
Combined Mil Urban Attack	Collateral Fatalities	Remaining Urb. Damage Potent.	Pre-emptive Strike
Appr Prog (extended)			
Posture A			
Posture B			

The higher fatality estimates show the Soviet damage potential in a well-coordinated mixed Soviet attack, the urban portion of which is designed to maximize fatalities. The ranges reflect variations in Soviet allocations between counter-military and counter-urban attacks, in the specific targets chosen, in the technological sophistication of Soviet penetration aids, in the extent of errors or lack of intelligence information in attack planning, and in attack coordination. Without the Civil Defense improvements assumed in Postures A and B, fatalities in a Soviet military-urban attack would be for Posture A, and for Posture B. These figures underscore the importance of improved civil defense.

The light defenses of Posture A are sensitive to large Soviet counter-urban attacks, although they keep the damage level below that of the Approved Program. The heavier and much more costly Posture B defense is less sensitive to the size of the counter-urban attack.

Interaction of U.S. and USSR Force Planning. U.S. offensive forces, apparently viewed by the Soviets as a potential first strike capability, exert pressure on the Soviets to protect their retaliatory forces. The effect of U.S. defensive measures - say, an ABM - on the Soviets, almost surely, would be to move them to offset the U.S. defense by expanding their offensive force. Our encouraging prospects in the development of U.S. anti-submarine defenses, however, may discourage major Soviet reliance of SLBMs. The long term viability of these measures, and their implications for ASW force requirements are under study.

The following table shows the results if the Soviets choose to restore their Assured Destruction capability against U.S. Damage Limiting Postures A and B; , possible Soviet land-based responses are assumed. The assumed response to Posture A is procurement of large mobile missiles at a 10 year cost of about $10 billion; to Posture B, missiles at a cost of about $20 billion. Results of equal expenditures on defended missiles would be similar.

page 17 denied + dismissed

A-3 boats. Only an unexpectedly serious Soviet ASW threat that would require dispersal of our forces on a larger number of SSBNs could change this. Disposition of the last 10 submarines, which cannot economically be converted to POSEIDON, need not be decided now. We are also studying the option to deploy new POSEIDON submarines after the last conversion of the 31 now planned.

We plan on an operational availability date (OAD) in 1970 for the POSEIDON missile carrying Mark-3 re-entry systems. I am tentatively recommending an all-MK-3 POSEIDON force for maximum effectiveness against strong ABM defenses. However, a capability to deploy a on POSEIDON will be preserved, and possible Mark-3 mixes will be re-evaluated yearly as new estimates of the Soviet ABM are made. The total FY68 cost of the POSEIDON program is $705 million; and the FY68-72 R&D, investment, and operating costs are $3.3 million.

Last year I commented on some of the command and control vulnerabilities of the FBM force. To solve these problems, at least for the next few years, I have approved the TACAMO radio relay aircraft program, which has the ability to maintain one aircraft continuously airborne in the Atlantic and one in the Pacific.

MINUTEMAN. I have approved the inclusion in the MINUTEMAN III program of an improved third stage, increasing MINUTEMAN III payload by at an additional FY67-72 cost of $400 million. When MINUTEMAN III becomes operational, there will already be 600 MINUTEMAN IIs in the force. Rather than replace these with MINUTEMAN IIIs prior to the completion of the Force Modernization Program in early 1972, we will take as a tentative planning objective a force consisting of 600 MINUTEMAN II and 400 MINUTEMAN III.

Since all 600 MINUTEMAN IIs will be available by July 1969, I am also recommending a rate of per month, which will lead to the complete replacement of all Mark-11As by end FY70. The production rate should be set for FY68 to provide for each MINUTEMAN III as it becomes operational.

By buying full complements of warheads and decoys now, we will maintain the flexibility to tailor MINUTEMAN III re-entry packages to Soviet defenses and target systems. In succeeding years we will adjust production quantities to avoid having excess re-entry systems.

To free our Assured Destruction capability from a long term dependence on terminal decoys, I am also approving development of a small re-entry vehicle, called the Mark-18, for MINUTEMAN at an FY68 cost of $25.6 million and an FY68-72 development cost of $288 million to achieve an IOC by end FY71.

TITAN. As newer missiles phase into the force, TITAN II will lose its unique advantages, while remaining expensive to operate. The end FY66 TITAN II inventory can support a follow-on test (FOT) program of 6 launches per year without cutting into the operational force until the end of FY70, at which time it would be necessary to phase down approximately one squadron per year. I recommend that the $18 million in FY67 funds for 6 new TITANs not be released.

Missile Flight Test Programs. We have re-examined our ballistic missile flight test programs, with two major conclusions:

— The number of missiles in operational flight tests (OT) should be determined on the basis of the number of significantly different missile configurations, rather than as a fixed percentage of the total force.

— FOTs should be viewed as providing data for updating our estimates.

These considerations suggest an optimum OT rate of approximately launches per configuration, and an FOT rate of per configuration per year, yielding savings of approximately $330 million during FY66-71, without appreciable loss to our knowledge of systems effectiveness, compared with the previously approved program.

Strategic Bomber Forces. A study of B-52G/H lifetime based on the recommended lower crew ratio and considering possible modifications, suggests that our B-52s will be able to operate effectively even after 1975 against projected or even better-than-expected Soviet air defenses. Therefore, I do not believe that an AMSA development program must meet

an initial operational capability date of FY74, even if it is decided that the B-52 should be followed by an AMSA. However, as an insurance program, I have started concept formulation to define and evaluate a suitable bomber design.

I recommend that 3 squadrons of HOUND-DOG A be retired in FY67, and the remaining 6 squadrons in FY68; HOUND-DOG B should be retained pending the outcome of the Terrain Matching Guidance (TERCOM) development program. This program will maintain enough HOUND-DOGs for their SIOP mission, primarily to attack area bomber defenses and lower-priority airfields, while resulting in FY67-71 savings of approximately $30 million.

The recommended strategic bomb inventory for the B-52 and FB-111 force in the 1970s provides loads per UE aircraft; this stockpile contains more than enough weapons to reload the force after a major strike on China, or to carry out extensive non-SIOP nuclear operations without compromise of SIOP loadings. Maintenance of additional weapons stocks above this level is no longer warranted.

NIKE-X Deployment. The following table shows the components entering the NIKE-X defenses of Postures A and B, and their cost, in addition to the $1.4 billion of RDT&E funds yet to be spent:

	Limited Defense Posture		Heavy Defense	
	No. of Units	$ Billions	No. of Units	$ Billions
Radars				
TACMAR Radars				
MAR Radars				
VHF Radars				
Missile Site Radars				
Sprint Interceptors				
TOTAL INVESTMENT COST				
FY67-76 OPERATING COST				
AEC COSTS				

A system designed against the early CPR threat and providing only an area defense covering the entire CONUS would consist of 4 VHF radars at $200 million, 16 Missile Site Radars at $2.4 billion and interceptors at $400 million for a total investment cost of $3.0 billion (excluding $1.4 billion in RDT&E costs).

A defense designed against the early CPR threat could have an initial operational capability about 4 1/2 years after a deployment decision and be completely in place between one to two years later. Given our estimates of the likely development of the CPR threat, the decision to deploy this system against this threat can be safely deferred even if we were to match our deployment to the IOC of a Chinese ICBM.

In view of the uncertainty of Soviet targeting and force structure response, and given the substantial cost and relative ineffectiveness of either Posture A or Posture B, I disapprove the JCS recommendation to deploy NIKE-X for a FY72 IOC.

Deployment of a New Manned Interceptor. The Soviets would probably use their bombers primarily in attacks on urban areas rather than on time-urgent military targets, since the time to reach target is so much longer for bombers than for ballistic missiles. Therefore, air defense is an important component of a Damage Limiting posture.

The F-12 and F-111 interceptors, equipped with the improved fire control and missile systems, and used with an effective Airborne Warning and Control System (AWACS), would be better than the present force in operating from degraded bases, countering concentrated bomber attacks, operating independently of a vulnerable fixed ground environment, and dealing with bombers attacking at low-altitude or carrying air-to-surface missiles.

With strategic warning we estimate that 32 UE F-12s or 48 UE stretched F-111As could achieve the same number kills before weapons release as the current force which has a 10 year cost of $3.0 billion. The 10 year systems cost for the 32 UE F-12 force have increased from the previously estimated $1.9 billion to $2.9 billion. Estimates for the F-111 force remain at $1.5 billion. The F-111 force therefore appears substantially more efficient than the F-12s against the currently projected threat. Supplementary calculations indicate that it is comparable in efficiency to the F-12 force against possible future threats.

The 48 UE F-111 force would operate from 4 main bases, 8 dispersal bases and 30 recovery/recycle bases. Sixteen combat support aircraft, that would be flushed with the interceptors, would carry missiles, ground support equipment, spares, and personnel to support the F-111 turn-around at the recycle bases. With 42 AWACS aircraft to provide airborne control, we could reduce the present ground environment, retaining only enough radars and BUIC centers for peacetime control.

The investment costs for this force include $676 million for the F-111 and $790 million for AWACS. Since the modernized force would ultimately have operating costs about $250 million per year lower than the present posture, the additional investment costs would be recouped by FY78.

Given the advantage of the F-111 interceptors - an aircraft already in long term production - and in the absence of a decision to deploy NIKE-X, the decision to modernize our air defense structure can be deferred for one year.

The F-12 development program will be reoriented in FY67 and FY68 to include further design studies for the F-111 interceptor, cost studies, and adaptation of the Navy AWG-9 fire control system for ADC use, using the YF-12 as a test bed. The AWACS development program which supports both tactical and CONUS defense missions, will be continued as a high priority effort.

SAM-D. We have a new surface-to-air missile system (SAM-D), in Advanced Development oriented primarily toward Field Army air defense and Fleet air defense but with potential application to CONUS defense. These efforts will define a building block approach to the system, and reduce costs. At this stage of development, a deployment decision would be premature. We are also examining the utility of NIKE-X in a surface-to-air role. Preliminary results are encouraging.

Civil Defense. The Damage Limiting Postures A and B include an expanded Civil Defense Program with dual purpose shelters in new non-federal public and private construction in addition to the shelters resulting from the present shelter survey and stocking program, but no special purpose shelter construction. The table shown below summarizes the protection offered by this program and compares it with the Approved Program, considering the location of shelters and limits on the movement of population.

The Approved Program extended to 1976 would cost $1.5 billion. Last year we began a one year, $10 million experimental program to evaluate shelter development in new construction. This program would give us information on the feasibility of incorporating dual purpose shelters in new construction, and on the necessary incentive schemes to stimulate shelter development. Although this proposal was not approved by the Congress, continued study indicates that such a program would provide for an efficient, controlled Expanded Civil Defense Program over time by incorporating shelters in new public construction and that this expansion can be matched to the deficits that will remain after conclusion of the shelter survey program. It is presently estimated that for $800 million we could add 50 million useful spaces, and save an additional 3 to 4% of our population over the approved program. An additional $1 billion spent on special purpose shelter construction, to meet the residual deficit, would save less than one percent of the population, and would not be warranted.

	Approved Program		Expanded Program	
	Number of Shelter Spaces In Millions	Percent of Population With Protection Factor of 40% or more a/	Number of Shelter Spaces In Millions	Percent of Population With Protection Factor of 40% or more a/
1966	140	35%	N.A.	N.A.
1971	230	64%	240	70%
1976	280	67%	330	88%

a/ The protection factor is the factor by which the outside radiation dose is reduced by the shelter.

Accordingly, I am recommending $186.3 million for the FY68 Civil Defense program to include $10 million for an experimental shelter development program. Pending completion of the experiment, I am including a nominal $25 million for shelter development in FY69. The further development of this program will depend on the results of this experimental program.

Military Survival Measures. This year we are introducing a new program to improve the fallout protection of our CONUS based military forces. Apart from providing personnel shelter to our Armed Forces as part of our general Civil Defense effort to shelter our citizens, our military organization would be an important national resource after a nuclear exchange. Surviving forces could be called on to prosecute conflicts after an initial exchange and to assist in the national recovery effort and might also be required to conduct residual military operations. Accordingly, I am recommending a new program, designed to supplement the existing Services shelter resources at an FY68 cost of $9 million and an FY68-72 cost of $47 million. The program that I am recommending will make maximum use of dual-purpose fallout shelters in existing buildings and new construction; it allows for dispersal of units and provides for construction of a limited number of special purpose shelters where dual-purpose shelter is unavailable. Most of the Service proposed construction of special purpose shelter is excluded. This will achieve about 3/4 of the service proposed increase in survival rates at about 1/4 of the cost of the Service recommended programs.

SUPPLEMENT TO THE DRAFT MEMORANDUM TO THE PRESIDENT ON STRATEGIC OFFENSIVE AND DEFENSIVE FORCES

I. POSEIDON Deployment.

As the following arguments show, a pure POSEIDON force is more effective per dollar than a mixed force of POSEIDON and POLARIS A-3. Damage Limiting considerations and the possibility of a POSEIDON payload consisting of . would further accentuate the superiority of the pure POSEIDON force.

In terms of payload one POSEIDON is worth A-3 missiles. Due, however, to the advanced warhead, re-entry vehicle, and MIRV technology available for POSEIDON compared to the A-3, the margin of POSEIDON capability is greater. The POSEIDON has

The ten year recurring costs of an A-3 submarine are approximately $240 million. For a submarine converted to POSEIDON, the initial cost of modification and missile procurement plus ten year operating costs per submarine are approximately $355 million, For a new POSEIDON submarine, the ten year costs would increase to $390 million per submarine. It appears that the cost of converting the ten oldest SSBNs to POSEIDON would at least equal the cost of new construction; hence for POSEIDON forces in excess of 31 submarines the new construction cost would be relevant. However, disposition of these last ten submarines need not be decided now.

Thus the cost of converting a submarine to POSEIDON, of procuring the new missiles, and of ten years of operation is approximately 50 percent more than the cost of operating a POLARIS submarine for ten years, while the effectiveness of the POSEIDON submarine is several times greater.

The POSEIDON also promises to be a much better hedge against perfection of a Soviet missile defense. To inflict 30 percent Soviet fatalities from a condition of normal alert through a defense that cannot discriminate penetration aids, which is the most favorable case for POLARIS A-3 requires:

would carry the and the MINUTEMAN III would carry MIRVs. This mix was arrived at by considering the Soviet military and urban target system in the absence of ballistic missile defenses. This year we have re-evaluated the desirable mix of characteristics of the MINUTEMAN force in the light of requirements imposed by possible Soviet ABM defenses.

b. MINUTEMAN II/MINUTEMAN III Mix.

The second effect of a possible strong ABM is to increase requirements for small MIRVs (MINUTEMAN III), at the expense of larger, single RV payloads. We will, however, already have 600 MINUTEMAN II at the IOC of MINUTEMAN III. Rather than replace these with MINUTEMAN III before the completion of the Force Modernization Program in February 1972, we should build towards a 600 MINUTEMAN II/400 MINUTEMAN III at February 1972, and all new MINUTEMAN boosters after MINUTEMAN III IOC should carry the improved third stage. Very soon thereafter it will probably be necessary to replace the earliest MINUTEMAN II missiles because of their age. At that time they can be replaced by MINUTEMAN III if it is desired.

c. Re-entry Vehicles

The production of will be geared initially to make available for each MINUTEMAN III. This initial rate will be maintained until FY 1969, By approving funds for initial production of both RVs and terminal penetration aids, not all of which can be used simultaneously, we guarantee ourselves the flexibility of carrying whatever payload combinations appear desirable at the time. The production rates will be adjusted in FY 1969 to eliminate unnecessary duplication of RVs and penetration aids.

The production rate of RVs per month, approved last year, was geared to permit the replacement of all RVs on MINUTEMAN II by the end of the Force Modernization Program in FY 1972. However, there is no reason to stretch out the replacement of MINUTEMAN II RVs that long, in view of the rapid rate at which the USSR is building hardened ICBMs, and the fact that all 600 MINUTEMAN II will be available for RV replacement by July 1969. Accordingly, a production rate of per month is approved, which will allow the entire MINUTEMAN II force to carry by end FY This will result in a single shot kill probability against a psi target of for a reliably delivered warhead, compared to for MINUTEMAN II/ and for MINUTEMAN I.

IV. Titan Force Posture

At the present the 54 U.E. TITAN II missiles make a unique contribution to our ballistic missile force. Their allows them to be programmed against target complexes consisting of several soft targets, in such a way that as many as MINUTEMAN or POLARIS missiles are released for other tasks; their long range (6,100 n.mi.) allows them to reach targets out of the range of MINUTEMAN. However, with the introduction of MINUTEMAN III-MIRV in 1969 the high TITAN II target-to-weapon ratio will no longer be unique; and the need for TITANs to reach very distant targets will diminish [redacted] as POSEIDON, and as MINUTEMAN III with the ability to reach greater ranges with reduced payload become available. The TITAN is very expensive to operate (at least $.6 million per missile per year and probably closer to $1 million, when indirect costs of this very small force are considered). Consequently, no new TITAN boosters should be procured in FY 1967 for follow-on tests (FOTs), at an FY 1967 savings of $19 million, and the recurring and other investment not needed if the force is to be phased down in the early 1970s. Operating the TITAN II force within the present inventory will result in no degradation until the end of FY 1970, after which approximately one squadron (9 missiles) per year will be phased down, in part to provide missiles for FOTS.

V. Strategic Bomber Forces

a. Operation of the Presently Programmed Force

The costs of operating the programmed bomber force are functions of the crew to aircraft ratio (crew ratio) and the aircraft assigned per base. The next table shows the five year costs for the B-52 G/H fleet and 210 FB-111s for various crew ratios, alert rates, and aircraft per base. Each of these has a dispersal capability and each assumes a crew work week of 74 hours to achieve the indicated alert rate.[1/]

1/ This is the length of the current work week for SAC crews. This work week includes about 14 hours of non-alert duties and some hours asleep at alert buildings.

FIVE YEAR RECURRING COSTS, 255 B-52 G/Hs AND 210 FB-111s FOR VARIOUS CREW RATIOS AND BASE EQUIPAGE
(Dollars in Billions)

Crew Ratio	Alert Rate	Number of Aircraft Per Base 15	20	20

Dispersal. The Air Force has proposed a plan for dispersal during periods of tension. The cost of this capability is relatively very low, ranging from $11.0 to $15.0 million five year costs.

The next table below shows the number of strike teams (one bomber and one tanker) which survive an ICBM attack with and without dispersal after various amounts of strategic warning followed by tactical warning from the ballistic missile early warning system (BMEWS). In all cases, it is assumed that all dispersal bases are targeted. It is evident that survivability is substantially enhanced, about 26% at the longest warning time, by dispersing the aircraft. Dispersal can be achieved at all crew ratios shown in the previous table.

SURVIVING BOMBER/TANKER STRIKE TEAMS AFTER ICBM ATTACK, STRATEGIC WARNING PLUS BMEWS TACTICAL WARNING.

	BMEWS Only	10 Hrs + BMEWS	20 Hrs + BMEWS	30 Hrs + BMEWS	40 Hrs + BMEWS
Without Dispersal					
With Dispersal					

In the early to middle 1970s the Soviets may present an effective sea launched missile threat with longer range missiles and a higher number of routinely deployed submarines than is presently the case. This threat can be countered, however, by basing the bomber force on interior bases, i.e., those located generally in the Central U.S. Such basing with a dispersal capability can provide nearly 100 percent survivability for the generated

bomber force in an attack by the projected sea launched missile threat. In the event of deployment of a longer-range Soviet SLBM, tactical warning could be provided to protect bombers at interior bases.

This discussion of basing options leads to three clear conclusions: (1) dispersal capabilities should be developed as soon as practicable for the B-52 G/H fleet and for the FB-111 fleet as it comes into the inventory. Large survivability payoffs result and the five year costs are relatively very low; (2) a longer term objective should be to relocate the strategic bomber fleet at interior bases, where existing interior bases are available. This would result in interior basing with dispersal by the early 1970s, which is as early as significant Soviet sea based capabilities are now projected; and (3) the B-52 G/H and FB-111s should be based 30 per home base.

Crew Ratios, B-52 Life, and Alert Rates. The B-52s of all series have had structural problems that arose for a number of reasons: age, operation outside their design envelope (low-level flight), and clear air turbulence - a phenomenon about which little was known at the time the B-52 was designed. Extensive investigations have resulted in a number of major modification programs. These have appreciably extended the life of the B-52s. For example, under the usage previously predicted by SAC, it is estimated that the wing of the G-H series will last 25 years. It is currently estimated that the present modifications will extend the life of other parts of the B-52 G/H structure to 1975. Nevertheless, our ability to predict fatigue life with confidence is poor, and the rate of wear-out is markedly dependent upon the type of mission being flown, which can change with changing circumstances. It is therefore possible that additional modifications will be required beyond those now foreseen. Conversely, there is no reason that the life of the B-52 Gs and Hs cannot be extended past 1975 by continuing modifications similar to the type implemented in the past. Decreasing the crew ratio would help extend their life, since this reduces the number of flying hours required.

The Air Force expects that the B-52 G/Hs will last until mid-1975, while accumulating 5500 flight hours per airplane in 1956-1975. This result is based on a crew to aircraft ratio of which permits about percent alert rate at the current SAC crew work week of about 74 hours.

The next table shows the alert rates that can be maintained for various crew ratios and crew work weeks. Also shown in this table are the dates by which 5,500 flight hours would be accumulated at the various crew ratios.

B-52 G/H NORMAL ALERT RATE IN % OF THE B-52 G/H FORCE FOR VARIOUS CREW TO AIRCRAFT RATIOS AND CREW WORK WEEKS: DATE OF ACCUMULATION OF 5500 HOURS PER B-52 G/H FOR VARIOUS CREW RATIOS

	CREW WORK WEEK					DATE OF ACCUMULATION OF 5500 HRS/ B-52 G/H
CREW RATIO	50 HRS	60 HRS	70 HRS	74 HRS	80 HRS	

As shown in the following table the lower B-52 alert rates do not compromise our Assured Destruction capability. This table shows the number of alert one megaton equivalents that could be delivered to Soviet targets in retaliation, BMEWS warning only, with both the FB-111 and B-52 G/Hs at the alert rates shown earlier.

AIRCRAFT DELIVERABLE SURVIVING RELIABLE PENETRATING ONE MEGATON EQUIVALENTS IN RETALIATION, FOR VARIOUS BOMBER CREW TO AIRCRAFT RATIOS AND CREW WORK WEEKS

FB-111/B-52 G/H Crew Ratio	50 Hrs	60 Hrs	70 Hrs	74 Hrs	80 Hrs

It is evident that an analysis based on alert rates only (planning for a "one day" war) cannot justify crew ratios in excess of ; however, "planning for a one day war" does not take into account support of large scale conventional bombing requirements. This is especially serious since conditions requiring use of SAC bombers for large-scale conventional operations would probably be just those conditions requiring a high level of dispersal and alert of part of the bomber force. If crew ratios were once reduced, it would probably take several years to build up and retrain additional crews. Before the development of an ICBM threat and the maintenance of a 15 minute alert posture, SAC operated at a crew ratio. A crew ratio of is sufficient to maintain the maximum number of conventional

sorties per B-52 squadron -- approximately 180 per month -- that can be sustained before aircraft maintenance becomes a limiting factor. Tactical Air Command currently also operates at a crew ratio. This suggests that until open questions such as the foregoing are better understood a lower limit of on the crew ratio should probably be observed. The next table shows the percent of Soviet fatalities that could be inflicted by the alert bomber force if both the B-52 G/Hs and the FB-111s were maintained at a crew ratio of .

	Crew Work Week				
	50 Hours	60 Hours	70 Hours	74 Hours	80 Hours
Percent Soviet fatalities					

This table shows that at work weeks of 60 hours or more, an increase in the alert force would not significantly improve its value as a hedge to our Assured Destruction capability.

In summary a crew ratio of for the FB-111s and the B-52 G/H appears reasonable based on current and past experience in conventional and low alert operations. At SAC's current work week, this would support an alert rate of). It may, however, be desirable to reduce both the work week and the alert rate. crew ratio provides a B-52 G/H life extension of about 18 months and it provides a force delivery capability that hedges against very substantial improvements in Soviet air defense capabilities over those existing now. It will permit high states of alert for 30 to 45 days and can provide a dispersal capability.

b. Penetration of Future Soviet Air Defenses.

Our work on penetration of future Soviet defenses is not complete but some tentative conclusions are emerging. The problem can be broken down generally into two parts, area (fighter) defense penetration and terminal defense (surface-to-air missile) penetration. The latter of these is the more tractable and will be discussed first.

The Air Force is currently conducting a comprehensive study of bomber penetration against defense with capabilities ranging from those present now to advanced systems such as those touched on above.

c. Advanced Manned Strategic Aircraft

The previous two sections lead to the conclusion that the B-52 G/H force can be operated in such a way that its lifetime can be extended significantly past 1975, and that significant and greater-than-expected improvements in Soviet air defenses will be required to degrade the penetration capability of a B-52/FB-111 force to the point of ineffectiveness in the role assigned to the bombers. Therefore I do not believe that developement of an AMSA must be geared to an IOC of FY 1974 at this time.

However, we do not know what the requirements will be on our strategic forces in the 1970s, nor do we know what role the manned bomber will be

called on to fulfill in the future. It is presently estimated that the time from start of Contract Definition to IOC would be on the order of 7½ years for an advanced bomber. In order to reduce this long lead time if this should appear desirable in the future, a special competitive advanced development contract formulation stage has been recommended at an FY 68 cost of $34 million. A more detailed description of this development program appears in my RDT&E memorandum.

d. Hound-Dog

The present Hound-Dog missile, with a CEP that may exceed and a low reliability, is a weapon of very little utility in the present SIOP. Until its accuracy is improved its use is incompatible with selective targeting of our strategic forces.

the Hound-Dog CEP may be reduced to while the reliability might be increased to more than It now appears that a production decision on TERCOM will not be available until FY 1969.

The present Hound-Dog force consists of Hound-Dog B, of which only the Hound-Dog B are suitable for The previously approved program calls for Hound-Dog A to be phased down along with the B-52 C-F series, and for maintaining Hound-Dog B with the B-52 G and H. Instead of this program, the Secretary of Defense has recommended that three squadrons of Hound-Dog A be phased out in FY 1967, that the remaining six squadrons be phased out in FY 1968, and that the Hound-Dog B be retained pending This phase down will retain enough Hound-Dogs for their primary SIOP tasks - the attack of area bomber defenses and lower-priority airfields - while resulting in an FY 1967-1971 savings of approximately $30 million.

e. Tanker Force Posture

The present force of 620 KC-135 tankers is shown in Program I and managed by the Strategic Air Command, but it serves the needs of other commands (principally the Tactical Air Command) under a pooled, single manager concept. There appears to be no reason to change this form of management now, and hence all 620 tankers will continue to be shown under Program I.

Although tanker priorities can be changed as required, our present planning is based on an average of one tanker for every bomber assigned a mission in the SIOP, plus requirements for support of whatever strategic reconnaissance would be needed at the same time. The remaining tankers are available for TAC to count on. At end FY 1971, for instance, this will result in 255 tankers in support of the B-52 G/H force, 230 in support of the FB-111 force plus 55 for reconnaissance support. The remaining 80 tankers will be earmarked for Tactical Air Command.

VI. New Manned Interceptor

The Soviet attack patterns in the calculations of Damage Limiting effectiveness have assumed that the Soviets would use their bomber force primarily to supplement missiles in attacks on urban areas rather than on time-urgent military targets in their combined attack, since the time to reach target is so much longer for bombers than for ballistic missiles. Our calculations indicate that air defense in addition to that needed for the peacetime air police mission, can contribute significantly to Damage Limiting.

Over the past several years we have been studying ways of modernizing our air defenses with small forces of new interceptors and an Airborne Warning and Control System (AWACS), permitting substantial reductions in the present Century interceptors and ground control environment.

We have been studying the F-12 and F-111 interceptors, both equipped with improved fire control and missile systems. When used with an effective AWACS, these interceptors would have a number of advantages over the present force: greater ability to operate from degraded bases, an ability to counter concentrated bomber attacks; an ability to operate independently of a vulnerable fixed ground environment; and a greater effectiveness against bombers attacking at low-altitude or carrying, air-to-surface missiles.

Studies showed that the smallest F-12 force which could achieve the same number of bomber kills as the current Century force was 32 U.E. F-12s, sizing the force on the basis of strategic warning or alert. The F-111 small force studies examined a new option: the stretched F-111A. This version doubles the combat radius and loiter time of the unstretched model (to 1800 n.mi. and 10 hours). The smallest force to match the current Century force was 48 U.E. F-111s.

The ten year systems cost for the 32 U.E. F-12 force has increased from the previously estimated $1.9 billion to $2.9 billion. On the other hand recent studies have not significantly changed the estimate of $1.5 billion for 10 year systems costs for the F-111 force. Therefore the F-111 force now appears substantially less expensive than the F-12 force, against the currently projected threat. and , supplementary calculations indicate, is comparable in cost to an F-12 force of equal effectiveness against more sophisticated future threats.

The operational feasibility of a small combat force has also been carefully studied in this past year. The 48 U.E. F-111 force is planned to operate from 4 main bases, 8 dispersal bases and 30 recovery/recycle bases. Sixteen combat support aircraft, which can be flushed with the interceptors, would be used to carry missiles, AGE, spares, and personnel to support the F-111 turn-around at the recycle bases.

With the introduction of 42 AWACS aircraft to provide an airborne control environment, we could also make substantial reductions in the present ground environment, retaining sufficient radars and BUIC centers for peacetime control.

The funds required for an advanced interceptor program include approximately $10 billion in R&D and investment costs for the F-111 interceptor and $775 million in investment for the AWACS system. Since the modernized force will ultimately have operating costs about $250 million per year lower than the present posture because of savings in ground environment and aircraft operating costs, the additional investment costs will have been recouped by FY 1978.

STRATEGIC OFFENSIVE FORCES

(Service Proposed in Parentheses where Different from Recommended)

	FISCAL YEARS													
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Bombers in Combat Units (UE)															
B-RB-47	900	810	585	450	225	-	-	-	-	-	-	-	-	-	-
B-52C-F	375	375	375	375	375	345	300	255	180	75	-	-	-	-	-
B-52G-H	180	240	255	255	255	255	255	255	255	255	255	255	255	255 (195)	255 (165)
B-58	40	80	80	80	80	80	78	76	74	72	-	-	-	-	-
F-111A	-	-	-	-	-	-	-	-	15	105	210	210	210	210	210
AMSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL UE BOMBERS	1495	1505	1295	1160	935	680	633	586	524	507	465	465	465	(15) 465	(45)* 465
Air Launched Missiles (UE)															
Hound Dog A	216	220	220	220	220	180	120* (180)	-* (180)	- (160)	- (160)	-	-	-	-	-
Hound Dog B	-	240	360	360	360	360	360	360	360	360	360	360	360	360	360
SRAM	-	-	-	-	-	-	-	-	-	150 (200)	450 (550)	525 (1025)	525 (1525)	525 (1525)	525 (1525)
TOTAL UE AIR LAUNCHED MISSILES	216	460	580	580	580	540	480	360	360	510	810	885	885	885	885
Ballistic Missiles															
Atlas	28	57	126	113	-	-	-	-	-	-	-	-	-	-	-
Titan	-	21	67	108	54	54	54	54	54	54	45 (54)	36 (54)	27 (54)*	-	-
Minuteman (MM) I	-	-	160	600	800	800	700	550	400	250*	100	-	-	-	-
MK-5/11 (Non Add)	-	-	160	600	660	660	560	410	260	110	-	-	-	-	-
MK-11A (Non Add)	-	-	-	-	140	140	140	140	140	140	100	-	-	-	-
MM II a/	-	-	-	-	-	80	300	450	600 (550)	600 (570)	600	600 (700)*	600 (650)	600 (550)	600 (450)
	-	-	-	-	-										
	-	-	-	-	-	-	-								
	-	-	-	-	-	-	-								
MM III a/	-	-	-	-	-	-	-	-	- (50)	150 (180)	300	400 (300)	400 (300)	400 (300)	400 (300)
TOTAL MINUTEMAN	-	-	160	600	800	880	1000	1000	1000	1000	1000	1000	1000	1000	1030
Advanced ICBM	-	-	-	-	-	-	-	-	-	-	-	-	- (50)	- (150)	- (250)
Polaris b/															
A-1/A-2 (Missiles/SSBNs)	80/5	96/6	128/8	192/12	224/14	192/12	112/7	80/5	128/8	128/8	128/8	96/6	-	-	-
A-3 (Missiles/SSBNs)	-	-	-	-	176/11	240/15	400/25	448/28	416/26	336/21	224/14 (256/16)	160/10 (192/12)	176/11 (224/14)	176/11	128/8 (160/10)
TOTAL POLARIS	80/5	96/6	128/8	192/12	400/25	432/27	512/32	528/33	544/34	464/29	352/22	256/16	176/11	176/11	128/8

STRATEGIC OFFENSIVE FORCES
(cont'd)

	FISCAL YEARS														
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Poseidon b/	-	-	-	-	-	-	-	-	-	-	112/7 (80/5)	208/13 (176/11)	320/20 (272/17)	352/22	384/24 (352/22)
MK-3 (Non Add) a/	-	-	-	-	-	-	-	-	-	-	1568	2016	2016	2016	2016
MK-17 a/	-	-	-	-	-	-	-	-	-	-	-	192	528	624	720
TOTAL UE BALLISTIC MISSILES	108	174	481	1073	1254	1366	1566	1582	1598	1518	1509	1500	1523	1528	1512
Other															
Quail	224	392	392	392	392	390	390	390	390	390	390	390	390	390	390
Tankers															
KC-97	600	580	340	240	120	-	-	-	-	-	-	-	-	-	-
KC-135	400	440	500	580	620	620	620	620	620	620	620	620	620	620	620
Recce															
RB-47	90	45	30	30	27	14	-	-	-	-	-	-	-	-	-
RC-135	-	-	-	-	-	-	10	10	10	10	10	10	10	10	10
SR-71	-	-	-	-	-	13	25	25	25	25	25	25	25	25	25
PACCS (Post Attk Com & Cont) c/															
B-47	-	18	36	36	-	-	-	-	-	-	-	-	-	-	-
EC-135	-	-	17	18	24	27	27	27 (32)	27 (32)	27 (32)	27 (32)	27 (32)	27 (32)	27 (32)	27 (32)
Regulus Missiles	17	17	17	7	-	-	-	-	-	-	-	-	-	-	-
TACAMO c/	-	-	-	-	-	4	4	4	4 (10)	4 (10)	4 (10)	4 (10)	4 (10)	4 (10)	4 (10)
Non-UE Aircraft	939	974	891	840	570	460	436	422	422	391	354	374	374	374	374
Alert Force Weapons															
Number															
Megatons															
TOTAL ACTIVE INVENTORY															
BOMBERS	1713	1622	1387	1298	1015	747	699	649	598	577	509	534	534	534	534
OTHER STRATEGIC AIRCRAFT	1811	1940	1722	1606	1281	1071	1056	1045	1034	1007	996	991	991	991	991
TOTAL AIRCRAFT	3524	3562	3109	2904	2296	1818	1755	1694	1632	1584	1505	1525	1525	1525	1525
Ballistic Missile Submarines (SSBN)															
In operation	5	6	8	12	25	27	32	33	34	29	29	29	31	31	32
In Conversion/Overhaul	-	-	1	3	4	10	9	8	7	12	12	12	10	8	9
TOTAL ACTIVE SSBNs	5	6	9	15	29	37	41	41	41	41	41	41	41	41	41

a/ The services did not propose any specific reentry vehicle posture.
b/ POLARIS/POSEIDON recommended force shows the number of launchers on line, excluding launchers in conversion or overhaul. By FY75, POSEIDON carries 720 MK-17 MIRV and 2016 MK-3 MIRV.
c/ PACCS and TACAMO show previously approved force structure. Current SecDef recommendations will be made by Oct. 1, 1966.

* Errata in first draft of the Memorandum to the President

STRATEGIC DEFENSIVE FORCES
(Service Proposed in Parentheses where different from Recommended)

	FISCAL YEARS														
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Air Defense															
Manned Interceptors															
Active U.E. Squadrons															
F-101	384	312	312	312	270	270	270	198 (264)	108 (252)	108 (252)	108 (234)	108 (198)	108 (180)	108 (108)	108 (90)
F-102	393	293	255	235	235	111	34	-	-	-	-	-	-	-	-
F-104	-	-	42	42	36	36	36	24	24	24	24	24	24	24	24
F-106	270	276	240	240	234	228	216	210 (216)	204 (210)	198	192 (198)	186 (180)	180 (162)	174 (162)	168 (144)
F-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-6	25	27	-	-	-	-	-	-	-	-	-	(12) -	(24) -	(48) -	(72) -
Air National Guard															
F-86	250	200	150	100	-	-	-	-	-	-	-	-	-	-	-
F-89	250	250	225	225	180	100	-	-	-	-	-	-	-	-	-
F-100	66	67	72	42	-	-	-	-	-	-	-	-	-	-	-
F-102	130	127	152	191	208	313	403	403	403	403	403	403 (385)	403 (367)	403 (367)	403 (349)
F-104	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-106	-	-	-	-	-	-	-	-	-	-	-	- (18)	- (36)	- (36)	- (54)
Surface to Air Missiles															
BOMARC	238	307	383	200	180	172	164	156	148	140	132	124	116	108	100
NIKE-HERCULES (Reg)	2340	2340	2154	1764	1548	1152	1152	1152	1152	1152	1152	1152	1152 (1098)	1152 (666)	1152 (234)
NIKE-HERCULES (ARNG)	108	108	396	756	936	936	936	936	909 (936)	832 (936)	802 (936)	772 (936)	742 (936)	712 (936)	(936)
NIKE-AJAX (ARNG)	1520	1440	720	-	-	-	-	-	-	-	-	-	-	-	-
HAWK (Regular)	-	-	576	576	576	576	576	576	576	576	576	576	576	576	576
NIKE-X	-	-	-	-	-	-	-	-	-	-	-				
Sprint Missile	-	-	-	-	-	-	-	-	-	-	-	(192)	(480)	(876)	(1088)
Multi-Function Array Radar (TACMAR) Defense Center	-	-	-	-	-	-	-	-	-	-	-	(2)	(4)	(7)	(7)
Missile Site Radar (MSR) Defense Center	-	-	-	-	-	-	-	-	-	-	-	(5)	(12)	(19)	(26)
SAM-D	-	-	-	-	-	-	-	-	-	-	-	-	(288)	(1440)	(2592)
Warning, Control and Surveillance Systems															
Combat Centers	8	8	8	7	7	5	5	5	5	5	5	5	5	5	5
Direction Centers	20	21	18	15	15	13	13	11	11	11	11	11	11	11	11
BUIC	-	-	-	-	-	14	12	14	19	19 (20)	19 (20)	19 (20)	19 (20)	19 (20)	19 (20)
SAM Fire Coord.Cts.	10	28	28	26	25	19	22	22	22	22	22	22	22	22	22
Search Radars (Reg)	182	179	169	168	162	158	151	151	151	151	151	151	151	151	151

STRATEGIC DEFENSIVE FORCES
(cont'd)

	FISCAL YEARS														
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Warning, Control and Surveillance Systems (cont'd)															
Search Radars (ANG)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Cap Filler Radars	112	103	96	100	92	91	91	91	91	91	91	91	91	91	91
DEW Radar	67	67	67	39	39	39	39	39	39	39	39	39	39	39	39
DEW Extension															
Aircraft	50	44	45	43	20	-	-	-	-	-	-	-	-	-	-
Ships	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Offshore Radar															
AEW/ALRI/Acft.	60	60	67	67	67	67	67	67	67	67	67	67 (40)	67 (0)	67 (0)	67 (0)
AWACS Aircraft	-	-	-	-	-	-	-	-	-	-	-	- (24)	- (42)	- (42)	- (42)
Ships	21	22	22	22	19	-	-	-	-	-	-	-	-	-	-
Missile and Space Defense Surveillance and Warning Systems															
BMEWS-474L	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Over-the-Horizon Radar(Transm/Rec)	-	-	-	-	2	2	3	4	4	4	4	4	4	4	4
Spasur Radar (Tranam/Rec)	-	-	-	3	4	4	4	4	4	4	4	4	4	4	4
Space Track Radar	-	-	-	-	3	3	3	4	4	4	4	4	4	4	4
TOTAL ACTIVE INVENTORIES	2384	2296	2195	2127	1875	1745	1609	1484	1339	1336	1321	1311	1301	1291	1281
TOTAL ACTIVE AIRCRAFT	26	27	22	22	19	-	-	-	-	-	-	-	-	-	-
TOTAL ACTIVE SHIPS															

SUMMARY OF PREVIOUSLY APPROVED (PA), SERVICE PROPOSED (SP) AND RECOMMENDED TOA FOR STRATEGIC RETALIATORY FORCES (IN MILLION $) a/

		FISCAL YEARS						
		1967	1968	1969	1970	1971	1972	1968-1972 Total
Bombers and Air Launched Missiles								
B-58 - P.A., S.P., Rec.		87	88	65	57	28	0	238
B-52 - Previously Approved		864	730	564	447	353	318	2412
- Service Proposed		864	730	594	453	486	491	2754
- Recommended		864	687	526	416	329	298	2256
FB-111A - Previously Approved		234	588	872	736	211	223	2630
- Service Proposed		234	588	835	729	216	223	2591
- Recommended		234	588	871	725	181	183	2548
AMSA - Previously Approved, Rec.		11	40	-	-	-	-	40
- Service Proposed		11	40	148	279	398	674	1539
Air Launched Missiles (Non-Add)								
Hound Dog - Previously Approved, Ser. Propo'd		32	33	22	19	18	14	106
- Recommended		31	22	14	14	14	14	78
SRAM - Previously Approved, Rec.		50	70	98	51	15	14	248
- Service Proposed		50	70	91	50	143	197	551
Strategic Missiles								
TITAN								
Previously Approved		76	69	72	72	78	78	369
Service Proposed		76	69	54	54	60	60	297
Recommended		58	51	54	32	52	35	244
MINUTEMAN								
Previously Approved		1076	1065	929	770	398	205	3367
Service Proposed a/		1087	1099	1021	1265	1102	1610	6097
Recommended		1094	1089	954	736	486	350	3615
POLARIS/POSEIDON								
Previously Approved		1128	1348	1272	1041	1265	860	5786
Service Proposed		1122	1709	1887	1779	1438	963	7776
Recommended		1089	1709	1887	1779	1405	1228	8008
Other								
KC-135 Tanker								
Previously App., Service Proposed		282	278	264	264	262	262	1330
Recommended		282	259	228	228	226	226	1167
Reconnaissance								
RB/RB-47 - P.A., S.P., Rec.		5	-	-	-	-	-	-
RC-135 - P.A., S.P., Rec.		12	20	17	17	17	7	88
SR-71 - P.A., S.P., Rec.		200	127	121	.09	101	100	558
PACCS - Previously Approved, Recommended		50	28	24	23	25	25	125
- Service Proposed		50	31	29	28	30	30	148
TACAMO (C-130 FG) - P.A., Recommended		2	2	2	2	2	2	10
- Service Proposed		2	5	8	8	8	8	37
Total (Primary Forces TOA)	Prev Appr	4027	4349	4202	3538	2340	2490	16919
	Ser Pro	4032	4784	5043	5042	4146	4438	23453
	Rec	3984	4688	4749	4144	2902	2414	18897
Comm, Control, Comm & Support	Support							
	Prev Appr	924	923	904	878	884	---	---
	Serv Pro	942	940	901	875	883	888	4487
Grand Total	PA	4951	5272	5106	4416	3224	---	---
	SP	4974	5724	5971	5917	5029	5326	27940

a/ Includes Advanced ICBM

SUMMARY OF PREVIOUSLY APPROVED (PA)
SERVICE PROPOSED (SP) AND RECOMMENDED
TOA FOR STRATEGIC DEFENSIVE FORCES (MILLION $)

	FISCAL YEARS						
	1967	1968	1969	1970	1971	1972	TOTAL FY 1968-72
Air Defense							
Manned Interceptors							
E-101 Recommended	97	90	60	41	45	45	281
Service Proposed	101	113	108	99	77	102	519
F-102 Recommended & Service Proposed	23	3	-	-	-	-	3
F-104 Recommended	22	8	7	7	7	7	36
Service Proposed	22	8	7	7	7	6	35
F-106 Recommended	122	115	95	95	95	95	495
Service Proposed	122	117	97	97	96	137	544
F-12 Recommended	10	-	-	-	-	-	10
Service Proposed	10	80	445	583	534	511	2153
Air National Guard							
F-102 Recommended	104	108	113	121	125	125	592
Service Proposed	104	108	113	121	125	122	589
F-106 Recommended	-	-	-	-	-	-	-
Service Proposed	-	-	-	-	-	2	2
Surface to Air Missiles							
BOMARC Recommended	13	13	13	12	12	11	61
Service Proposed	13	13	13	12	12	9	59
Nike-Hercules (Regular) Recommended & Service Proposed	119	123	119	118	114	114	588
Nike-Hercules (ARNG) Recommended & Service Proposed	66	66	67	66	66	66	331
Hawk (Regular) Recommended & Service Proposed	15	11	10	10	10	10	51
Nike-X Recommended	446	402	299	197	122	100	1120
Service Proposed	446	639	877	1575	2037	1900	7028
SAM-D Recommended	-	-	-	-	-	-	-
Service Proposed	20	74	103	59	300	554	1090
Warning, Control & Surveillance Systems							
Combat Centers Recommended	13	12	11	11	11	11	57
Service Proposed	13	12	11	11	11	11	56
Direction Centers Recommended	59	56	51	51	51	51	260
Service Proposed	67	63	57	56	55	55	286
BUIC Recommended	27	32	22	17	19	19	109
Service Proposed	27	36	30	28	28	28	150
SAM Fire Co-ordination Centers Recommended&Serv.Prop.	16	38	47	14	14	14	127
Surveillance Radars Recommended	213	224	233	205	194	201	1057
Service Proposed	224	244	211	207	195	190	1048
DEW Radars Recommended	40	41	41	41	40	40	203
Service Proposed	35	35	35	35	34	34	173
AEW Aircraft, EC 121 Recommended	49	50	49	49	49	49	246
Service Proposed	55	57	57	56	55	41	266
AWACS Recommended	3	41	85	60	20	-	206
Service Proposed	3	41	185	519	180	77	1002

SUMMARY (cont'd)

		FISCAL YEARS						
		1967	1968	1969	1970	1971	1972	TOTAL FY 1968-72
Missile and Space Defense								
Surveillance and Warning Systems								
BMEWS - 474L	Recommended	59	58	61	55	55	55	284
	Service Proposed	59	64	61	56	56	56	293
Bomb Alarm System	Recommended & Service Proposed	4	4	4	4	4	4	20
SPASUR Radar	Recommended & Service Proposed	7	5	5	5	5	5	25
Over-the-Horizon (440L)	Recommended	23	28	14	10	8	8	68
	Service Proposed	24	28	7	8	8	8	59
Spacetrack Radar 496L	Recommended	34	29	27	25	24	24	129
	Service Proposed	38	29	30	28	28	28	143
Civil Defense	Recommended	134	201	183	157	153	144	838
	Service Proposed	134	250	335	309	305	296	1495
Program II								
Sub-Totals	PA	1757	1807	1628	1402	1273	1210	7320
	SP	1781	2273	3047	4094	4388	4391	18193
	Rec	1731	1769	1627	1381	1253	1208	7238
Command, Control Communications	PA	465	482	470	464	453	-	-
Support, Adv. Flying Training	SP	465	409	314	315	327	327	1692
Grand Total	PA	2222	2289	2098	1866	1726	-	-
	SP	2246	2682	3361	4409	4715	4718	19885